

# MANUFACTURING EXTENSION PARTNERSHIP

## Success Stories from the Field

### Union Switch and Signal

#### South Carolina Manufacturing Extension Partnership

#### Lean Implementation

##### Client Profile:

Union Switch & Signal (US&S) makes switching, signaling, and safety interlocking equipment for the railroad industry. Founded in 1881, US&S's corporate headquarters is in Pittsburgh, Pennsylvania. The company's 350-employee Batesburg, South Carolina, manufacturing facility serves about 50 railroad and 75 to 100 transit system customers worldwide.

##### Situation:

US&S management wanted to reduce product costs. Heavy offshore competition from India and the Far East make these improvements vital to the plant's survival, since it is the primary employer in the Batesburg-Leesville, South Carolina, area. Mike Vinson, US&S Human Resources Manager, had a long-standing relationship with the South Carolina Manufacturing Extension Partnership (SCMEP), a NIST MEP network affiliate, and contacted SCMEP for help.

##### Solution:

After completing a Competitiveness Review (CR), SCMEP's Manufacturing Specialist Tim Sinclair and the US&S leadership team worked with employees to implement Lean Manufacturing techniques initially in two areas, the Gate Mechanism assembly area and the PC Board assembly area. The initiative focused on eliminating all waste in the manufacturing processes. Principles of the Batesburg Lean system include zero waiting time, minimized inventory, scheduling requirement changes ("pull" system instead of a "push" system), batch to flow (cut batch sizes), line balancing, and cutting actual production times. This approach to designing and managing production processes has helped to minimize inventory and increase just-in-time delivery, improving the overall efficiency of the manufacturing process.

##### Results:

In the Crossing Gate Mechanism assembly area:

- \* Reduced cycle time from 1 1/2 days to 76 minutes.
- \* Increased production to 5 assemblies per day without additional labor.
- \* Increased cell efficiency by reducing the space required to perform the work to one-half of its original space.

In the PC Board assembly area:

- \* Reduced cycle time from 56 days to 15 days for a completed assembly.
- \* Reduced work in progress from 250 released work orders to 90, representing a \$400,000 to \$500,000 improvement.
- \* Eliminated overtime and most non value-added steps.

In the switch assembly area:

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- \* Reduced setup reduction in work cell by 20 percent.
- \* Increased cycle time.
- \* Reduced cost reduction in labor and tooling.
- \* Improved throughput to 4 switch machines per day, with plans to improve to 5 per day by June.
- \* Reduced work in progress resulted in increased profitability.

In the Coil Winding area:

- \* Eliminated non value-added steps and initiated Kanban system.
- \* Reduced cycle time from 30 days to two days.
- \* Eliminated coil shortages.
- \* Eliminated overtime.

### **Testimonial:**

"The initial project was very successful in those areas, so the Batesburg leadership team began implementation facility-wide, including the machine shop, electronics, wiring, and track relays. These initial indications shows the dramatic impact that Lean Manufacturing concepts have had on Union Switch & Signal's South Carolina plant. With continued implementation of Lean Manufacturing, and other process improvements like it, US&S should remain competitive and meet the challenges it faces in the next few years."

Mike Vinson, Training Manager